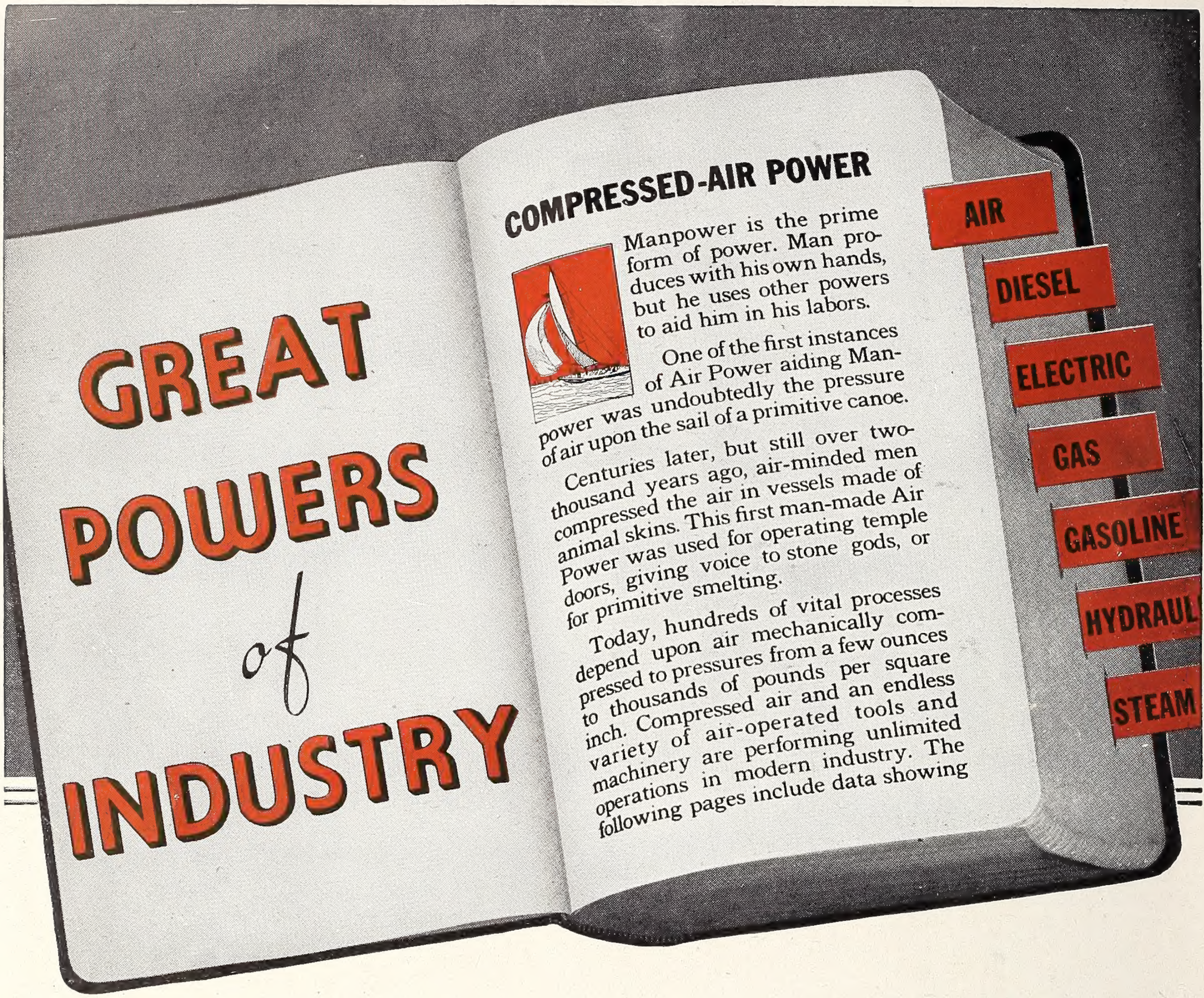
Illustrated
FOREST & OUTDOORS

JUNE
1947

Montreal, Canada

Malak: Ottawa.



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Manpower is the prime form of power. Man produces with his own hands, but he uses other powers to aid him in his labors.

One of the first instances of Air Power aiding Manpower was undoubtedly the pressure of air upon the sail of a primitive canoe.

Centuries later, but still over two-thousand years ago, air-minded men compressed the air in vessels made of animal skins. This first man-made Air Power was used for operating temple doors, giving voice to stone gods, or for primitive smelting.

Today, hundreds of vital processes depend upon air mechanically compressed to pressures from a few ounces to thousands of pounds per square inch. Compressed air and an endless variety of air-operated tools and machinery are performing unlimited operations in modern industry. The following pages include data showing

This book is not for sale . . . as far as we know, it does not exist.

If it did, such a book would point out the types of work that can be accomplished by *several* forms of motive power used by industry . . . the problems that can be solved *better by one* than by any other . . . the things that can be done by *only one* of them . . . and the still other jobs that require *combinations* of several powers.

In the absence of such a book, we must all depend upon experienced engineers and manufacturers to advise us of the very latest practices in their particular fields.

So if you are not thoroughly familiar with *Compressed-Air Power* . . . what it is doing for others, and what it can do for you . . . get in touch with a Canadian Ingersoll-Rand Engineer. He knows Air Power and its applications.

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AIR AND GAS COMPRESSORS • ROCK DRILLS • HOISTS • PUMPS • BLOWERS • CONDENSERS • AIR TOOLS

Only part of a stand of thousands of trees in British Columbia. *Photo: James Sawder.*

SALVATION IN FORESTS

> **"In dedicating itself to the goal of freedom from want, FAO must devote a major effort to restoration of the world's forests, and to the effective use of their products"**—*Sir John Boyd Orr, Director-General, Food and Agriculture Organization of the United Nations.*

By NORTON ANDERSON

IF it is possible to visualize five thousand million acres of forests, you have a pretty accurate idea of the extent of the world's virgin forests today. Authority for this statement is a vitally-important report issued by the Food and Agriculture Organization of U. N., describing in detail the world situation, 1937 to 1946, of forestry and forest products.

Never before the setting up of FAO was it possible to get official statistics on the forest situation in the whole world. FAO admits that a subsequent report will add to the information when delinquent member-countries file information on the extent of their countries' holdings. Perhaps FAO will not be able to secure accurate estimates from countries, such as the U.S.S.R., where one source gives annual net growth at 17,500 million cu. ft., and another informant places it at 8,750 million cu. ft. A difference of doubling.

Last Hope

But despite the doubling, the virgin forests left in the world constitute, says the report **"probably the last remaining opportunity for advancing the frontiers of modern civilization."** At present these forests are not increasing in volume, for fire and decay destroy year by year all the wood substance added by natural growth, and leave no net increment.

Canada comes into the report which states that during the war years our annual cut averaged about 2,590 million cu. ft. which, together with losses due to fire and pests, has probably resulted in an annual drain greater than annual growth.

The last war made this overcutting situation general throughout the world. Land and aerial warfare inflicted serious local damage only in the areas of actual fighting. With the exception of the forests of Greece and Poland, which were badly devastated, European forests emerged from the war practically intact.

World Forest Management

"To state the world's forest problem in broad terms is not difficult. There is a shortage of wood, despite the fact that the world has more than enough forest soil to provide wood for the earth's people, even under expanding economy", the director-general stated.

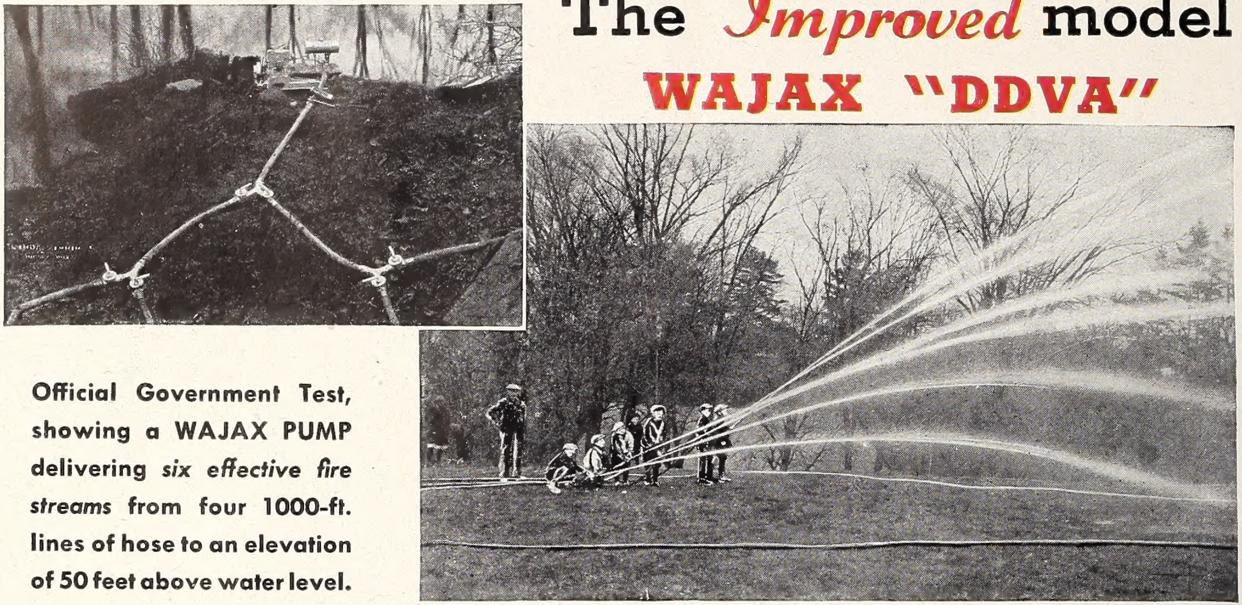
"The remedy too is clear. The forests must be managed as perpetually renewable crops. Waste must be reduced. Legislation must be invoked and the forces of education mobilized to protect the forests from fire and destructive exploitation. Afforestation must be undertaken on a scale **never before dreamed of. . .** "

(Because the story in this report is so important to Canada, *Forest and Outdoors* will carry, starting in July, selected features dealing with the world forestry situation).

FAVOURITE OF FOREST ENGINEERS ACROSS CANADA

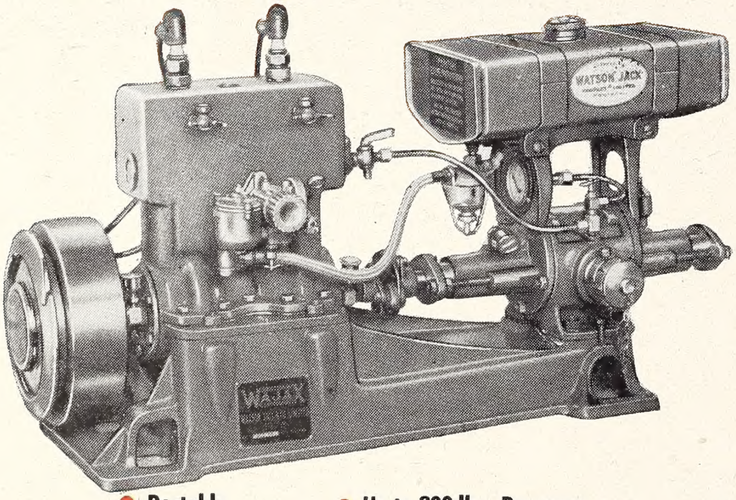
The *Improved* model

WAJAX "DDVA"



Official Government Test, showing a WAJAX PUMP delivering *six effective fire streams* from four 1000-ft. lines of hose to an elevation of 50 feet above water level.

THE LIGHTEST FOREST FIRE PUMP UNIT OF ITS CAPACITY



- Portable
- Self-Priming
- Up to 200 lbs. Pressure
- More than 25 lbs. lighter

WEIGHS ONLY 75 LBS. INCLUDING GAS TANK!

Combining the features of light weight and portability, with high pressure performance, this new Wajax DDVA Self-priming pump unit has won the enthusiastic approval of engineers, lumbermen and fire fighters everywhere. Utilizing proven, lightweight alloys in the cylinder block, pistons, connecting rods and other parts — in lieu of cast iron — a weight reduction of 27 lbs. has been effected, with no loss in strength, capacity or pressure. These new and lighter parts are readily interchangeable with earlier WAJAX models. A special feature of WAJAX Pumps is a vertical suction lift of up to 22 feet without use of any priming devices whatsoever. Production of WAJAX Units has been accelerated to meet increasing demand — your orders and enquiries will be dealt with promptly.

Suppliers of "WAJAX", "HAJAX", and "JACKO" Gas Engine Driven Pumps and Fire Fighting Equipment including Large Trailer Fire Pumps, "WAJAX" Hand Fire Pumps and "WAJAX" Long Line Linen Forestry Hose.

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WATSON JACK & Company Limited

CASTLE BLDG. Established 1898 MONTREAL

Rolling cares of grain, green forests, mounds of coal — three resources awaiting man's ingenuity.

MAINSPRINGS OF CANADA'S WEALTH

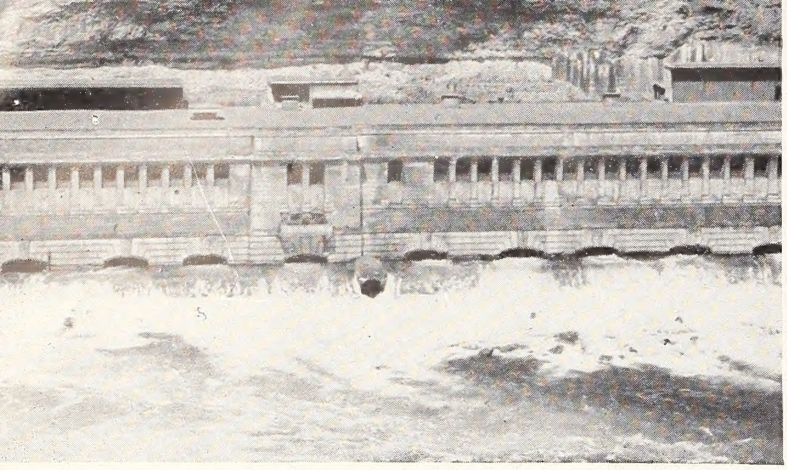
by **DR. JOHN S. BATES**

FROM the national standpoint nothing has to be paid for raw materials as we find them. It is only when human activities come into play that wealth is created. Nature has been generous. The least we should do is to make the most of our opportunities for the present and to leave a richer heritage for the tens of millions in the future.

One might liken natural resources to the five senses. Man is blessed with sight, smell, taste, hearing, and touch. Note that four of these senses are in the head, one serves the body, and all five function from the brain. In the material world the sources of wealth are the five natural resources — farm land, forest, water, wild life, and mines. Four of these are on the surface, one goes deeper into the earth, and all five await human ingenuity. In remembering this imperfect analogy, keep in mind that the four surface resources can be greatly increased in productivity, only the mineral raw materials being non-reproducible.

Canada's annual income in 1943 was estimated at $6,300,000,000. The primary products from natural resources netted $2,400,000,000 or 37 per cent. Although the dividing line is not sharply defined, the manufactured products amounted to $3,600,000,000 or 57 percent. Construction, repairs and the like accounted for the remaining 6 percent of national production.

Canada is rated as the third or fourth nation of the world in international trade. Prudence suggests that the future aim should be to expand our business at home as a safeguard, coupled with diversification of exports and imports to maintain a level of external trade as high as possible with changing conditions. The fact that the enormous economy of the United States is only 10 percent external should be kept in mind as an influence and a comparison.



Waterpower offers wealth... a hydro-electric plant at Niagara Falls.

Our 3,500,000 square miles of territory constitute 6 percent of the earth's land surface. Present population is only 0.6 percent of the world's total, only one-tenth of our share. Not much imagination is needed to foresee at least 60,000,000 Canadians living in comfort and plenty.

Geologically, Canada is an old country. Eras of icebergs and southward drainage carried away soils and minerals to build up great areas of the United States once charted as shallow seas. Today Canada's agricultural land is estimated to total 10 percent, compared with over 50 percent for Continental United States. Our forests cover about 35 percent of the land area, leaving 55 percent of Canada unproductive. The more temperate climate and the richer mineral wealth of the United States also favour our neighbours to the South. At the same time Canada, among the Northern countries of the world, is richly endowed with a wide variety of natural resources whose very magnitude for the limited population has made us rather careless in relation to protection for the future.

Balancing Our Productive Assets

Agriculture has gone far beyond domestic requirements, and contributes in large measure to exports. Farm products amount to 50 percent of primary production. Much might be written on this subject to emphasize the vital place which agriculture holds in our national economy, but it is not the purpose of this review to give space for each national resource equivalent to its importance. Engineers should take more interest in irrigation, water tables, fertilizers, diversification, by-products, and other means by which the scanty 9 inches of valuable top soil can be protected from erosion, drifting, and degradation. Organized effort can build up the soil values and increase the crops and their variety for the indefinite future.

The forest resource is next in importance to agriculture and closely related to it. All productive land is divided between the two. Forests cover 58 percent of the land area of the nine provinces and farm lands 14 percent, leaving 28 percent mountainous and otherwise waste. If land is not suitable for agriculture, the only possible use is for the growing of trees. This is the significant fact, which is not yet appreciated by the average Canadian citizen. We can grow as many trees as we want.

The net value of lumber, pulp and paper, etc., is equivalent to 20 percent of the primary products of all natural resources. This means that the forest industries account for only 7 percent of national economy and employment. The annual cut of about 28,000,000 equivalent cords is fairly evenly divided between sawlogs, fuelwood, and pulpwood. In addition, fire and insects destroy more trees every year than are cut for pulpwood.

Wood Crops Open to Increase

Northern climate is no handicap, because the valuable softwoods of the world are confined to countries such as ours. Norway, Sweden and Finland together have about one-fifth of the forest area of Canada, and each year are able to cut more wood than we do without impairing continuous yield from the forest. The warmer climate of the United States allows very much higher cut than in Canada. The point is that reinvestment of a larger proportion of forest revenue would permit steady increase in annual wood crop to the upper limit of over five times the present Canadian figure. This will take time and money, but the procedure is well known to our foresters and the proposition is highly economic.

There seems no doubt about future markets. The annual cut for the whole world each year is about 750,000,000 tons dry weight, but 60 percent goes for direct burning as fuelwood, 33 percent represents sawlogs and the like for lumber and related industries with allowance for miscellaneous uses of wood, and only 7 per cent is consumed as pulpwood for all kinds of paper and fibreboard. As suitable trees of sawlog size are fading in most countries, there should be no doubt that every available sawlog in Canada can be converted into lumber for profitable sale. All indications point to rapid increase of products from the pulp and paper industry, and it is not too much to expect doubling of world consumption within 50 years. In other words, it would appear that the future of our wood-using industries will be determined largely by the magnitude of the annual crops which safely can be taken from the forest rather than by market limitations. This is a most important conclusion, because the same cannot be said of numerous products in the general field of manufacturing.

Wildlife Total Not Impressive

Wild life resources include fish, flesh, and fowl not in association with farms and other domestic production. The annual value for Canada is not an impressive total, but special measures in other countries have shown how greatly the annual supply can be increased. The coastal fishing industry has been receiving the benefit of mechanization coupled with scientific handling of prepared fish to the markets. As Canada has more inland fresh waters than any other country, the recent studies of water fertilization suggest enormous possibilities for the future. Preserves for wild ducks and other birds have at least stopped the downward trend. Protective measures for beaver, moose, and many other kinds of animals living wild in our forests have shown the way towards abundance for the future.

Water and air represent extremely valuable resources, which are often discounted by reason of plentiful supply. Sea water usually is taken for

(*Concluded on page 185*)

Invading Grizzly King's Playground

He saw so many-coloured grizzlies on the Kwatna River that every red or black rock, or stump, or mossy log could have been another — and often was.

by CLIFFORD R. KOPAS

(All photos by the Author)

The coastal rivers of British Columbia, emptying into the sea through tidal estuaries growing acres of grass and herbs that the bears like to eat as food and tonic after their winter's inactivity; and with the forest in the back-ground to offer shelter, offer a prolific breeding-place for bears. They are so numerous in some places as to defy belief. This is the estuary of the Kwatna River, B.C.

GRIZZLY BEARS are creatures of shadow. If you want to see them, look for them in the shadows of the deep forests, or under the overhanging foliage just above the water's edge. Watch for gray stumps that, after being immobile for minutes, suddenly come to life and develop legs, and a long snout and a large pendulous head. Eliminate all the obvious things and watch the things that might be bears. Watch until your eyes water, and if there are bears there, you will see them . . .

That is the essence of what Clayton Mack, famous game guide and my partner in many a wilderness adventure told me. I followed his advice and on our trip into Kwatna we saw 18 bears.

The trip started much as any other trip had. Clayton walked into my photographic shop and casually announced that the bears were on the Kwatna River.

So, inside of ten minutes my shop had been left in charge of my assistant, I had collected my sleeping-robe, sox, food, camera and film, and had kissed my wife good-bye. Inside an hour we were chugging down a far-reaching channel of the Pacific Ocean, Kwatna-bound, our minds and conversation filled with bears.

It happens at least once every year, this pilgrimage to the Kwatna River Valley. Every year we go down there to hunt and disport among the bears . . . not to shoot and kill, for that would be too easy, too sudden and entail too much follow-up work. Besides, we have more fun in just playing with the bears.

Kwatna was the same this year as it was last, or the year before that or a century before that. Man had gone in there, taken off a rich layer of forest as high up as tide-water reached, but in the elapsing two-score or so years fast-growing alder and birch had healed the wound and the Kwatna Valley is as always, a land of lush vegetation, splashing, spawning salmon, and waterfowl and bears and wolves.

Fire hours after we had left Bella Coola we stuck on a gravel-bar in an attempt to ascend the Kwatna River. But the tide was just on the turn to rise, so we waited with the patience that a man must show while waiting for tides, knowing that in an hour or so we would be liberated and allowed to go further up the river.

We saw our first bear as we waited there. But he was one-half of a mile away, and if he had not been the first we would scarcely have noticed him.

That evening as we lay at our mooring a big moon shed silver over a scene of almost tropical luxuriance, intensifying the highlights and the shadows. In the stream the salmon splashed and

This is not a cattle watering-hole but a grizzly-bear playground along the Kwatna river.

a nearby wolf howled a hoarse, spine-tingling call, and was answered from the mountain-side.

It was difficult to believe that a few scant hours before we were part of civilization . . . or such as is represented by a little coastal village.

The next morning we dumped our cameras, a bag of fruit and a 30-30 carbine (in case of trouble) into an Indian dug-out canoe and started poling up the stream.

Saw Fresh Bear-track

Within a quarter of a mile we saw fresh bear-tracks in the sand — fresh because the tide had covered that sand-bar and receded just two hours earlier.

A scant 15 minutes later we were lifting ourselves over the upper lip of a riffle when around a bend in the stream just ahead, and walking along a gravel-bar with the look of a rancher coming to see what his cows were bawling about, came a big grizzly bear. He stopped when he saw us, looked intently at us for a few seconds then bounded for the jungle. We saw the still bleeding fish on which he had been feeding.

Almost around the next bend we spotted another bear . . . found him fishing in the shallows and watched him grab a wriggling salmon from the water and carry it in his mouth into the shadows. We saw him lie down in a camouflaging mixture of light and shade . . . and disappear. We looked until our eyes watered but we could no longer discern him.

Even while we were watching this fisher-bruin, another bear, a small silver-tip, came playing down the gravel-bars, enjoying the sunshine and splashing into the stream now and again to chase a salmon.

This fellow clowned and fished and played for a full 15 minutes while I held the canoe against some bushes to permit Clayton ashore with his movie camera.

A tributary flows in from the left about three miles from the point where we had left our gas-boat, and Clayton wanted to go up this stream and look around. Clayton being about as light and quick in the woods as a shadow, I suggested he could go alone. Two years ago we had gone up this tributary together, and when we were about one-half of a mile up we had come upon a mother bruin with her two cubs. The mother had shown an undue curiosity about our presence, and was within six feet of us when Clayton shot her. We didn't know whether or not she was attacking, but six feet is a very small margin of safety, and it had seemed as if either she had to go or us. But the crying of her cubs had haunted me for weeks.

Clayton put the 30-30 into the crook of his arm.

"If you hear a shot you'll know what has happened," Clayton said as he walked away.

Shot Echoed Down Corridor

In about 15 minutes a shot echoed down the corridor of the stream-bed, and about ten minutes later Clayton returned.

"I ran into a family of a male, a female and a couple of cubs. I was watching the cubs and pretty nearly stepped right onto the old man. He jumped into the stream and floated down, then ran back and did it all over again, and finally came sidling up to me like a fighting dog, his bristles all up. I had to drop my camera and shoot, fast. By Gosh! I was scared! My knees felt like they wouldn't hold me up".

Clayton sitting on the bow of the canoe on the Kwatna river and meditating on the danger of going alone into bad bear country. This was just after the bear attacked him up the tributary.

Clayton avowed he'd never go up that stream alone again.

Bears are not gregarious animals, and do not bunch together, but at times a female will retain two sets of cubs, and will attract to the group an adult male, so that a party of six bears might be encountered . . . a party that one should not irritate unduly.

Now Clayton vowed he'd never go up the stream alone again, but he invited me to go up with him and see the dead bear.

By fluent persuasion I managed to get him to go up the main stream of the Kwatna River rather than take me up that bear-haunted tributary.

In fact, we went up-stream past the point where the spawning salmon had come from the sea. This point also marked the end of activities for seagulls, crows, ravens, and eagles. We poled about a half-mile farther up this now fish-less stream, saw absolutely no signs of bear, and decided we would be wasting our time in going farther. 'No fish' plainly spelled 'no bears'.

We started our return down-stream.

Presuming we were in bear-less country we travelled noisily and without caution . . . thereby losing a chance to get a picture.

We were picking our way through some drift in a riffle, when, suddenly, just across the log we were seeking to avoid, the sound of crunching gravel caught my attention. A big red grizzly reared up, followed by two little cubs.

"Look! Look!" I cried to Clayton, "BEARS!"

Ten Feet From Mother Bear

By this time the mother's beady eyes had taken in the scene. Maybe her nostrils caught our scent. At any rate a very toothy snarl wrinkled her lips and nose. I thought we might be in for trouble, for ten feet from a mother bear, and partly hemmed in by drift didn't give us much room in which to get away. But my fear was as short-lived as it was intense, for the bear whirled, dropped on all fours and leaped up the bank into the woods. Her two cubs, beautiful, reddish-brown specimens, sprang after her, collided and bounded apart like a pair of rubber balls.

From the woods came snorts which we interpreted as being in disgust at herself for being caught in the act of bathing by two strange men.

(Concluded on page 181)

Diary of a Theatre on Wheels

Canadian Forestry Association lecture tours are underway throughout the Prairie Provinces for the 1947 season. Reports, down-to-earth and intimate, dealing with the tree-planting campaigns, come in from trained field men who meet rural citizens. Here are excerpts from the first one.

Monday, April 14th. LEDUC, Alberta. Mileage 559 — Meetings 3 — Attendance 365.

We opened our tour at this point with three fine programmes. In the afternoon the high school pupils, numbering 120, attended at 1:30 p.m., with the junior grades present for a second showing, in all 235 young people. After these meetings a number called at the car to discuss tree-planting.

In the evening our car was filled to capacity, with many standing in the aisle, and this despite bad roads in the area. Interest was good, and we had a fine discussion period afterwards. Among those present was Mr. A. Hammermaster, of this district, who has enjoyed wonderful success in tree-planting. He secured his trees from the Forest Nursery Station at Indian Head, and has evergreens on order for planting this spring. Mr. C. Evans, a local farmer, gave us his name to send in to Indian Head. He plans to start tree-planting next spring.

Wednesday, April 16th. WETASKIWIN. Mileage 10 — Meetings 1 — Attendance 83.

We arrived here too late for any programme during the day, but as we remained the next day, our school programmes were billed for Thursday. However, we had a number of visitors to the car in the late afternoon. Mr. Mike Deering, of Millet, drove up to leave his name with us to send to Indian Head for trees next year, as he plans to start a shelter belt. The Ballhorn brothers have a beautiful belt of spruce on their farm, situated five miles from town. Planted some years ago, they are native trees, dug up in this area and planted as a shelter belt. They are a beautiful sight today, many of the trees now being over 18 inches in diameter.

Thursday, April 17th. WETASKIWIN. Meetings 2 — Attendance 380.

Held two programmes in the school today, with 380 young people present. We were thanked for the programme, congratulated on its value, and extended an invitation to return.

Friday, April 18th. GWYNNE. Mileage 9 — Meetings 2 — Attendance 160.

A tiny point. In the afternoon we had about 60 young people and adults present. They were keenly interested, many of the older people expressing their appreciation of the programme.

In the evening our car was filled, and nearly all present were country people, a remarkable turnout for this hamlet.

Impressionable faces; and receptive minds learn early about forest management.

Tuesday, April 5th. MILLET. Mileage 14 — Meetings 2 — Attendance 245.

In the evening, close to 100 people filled our car. Bad roads kept some farming people away. Interest was good and we had a fine discussion period after the meeting. This is a country of native growth, and in the past, little consideration has been given these trees, due to lack of appreciation of their value. Today this is changed, and as each year passes they are receiving more appreciation and care. Spruce and poplar are the most common trees making up this parkland area.

Saturday, April 19th. BITTERN LAKE. Mileage 6 Meeting 1 — Attendance 95.

Another very tiny point, no afternoon meeting advertised, but a splendid turnout of people for the evening programme. They were greatly interested in trees and tree planting in this area, and a number were summer-fallowing their land for trees next spring. We had a fine discussion period after the programme.

Totals: Mileage 598 — Meetings 11 — Attendance 1,328.

CLIMATE CLUTCHES OUR ECONOMIC THROATS

"...weather is indirectly responsible for tremendous waste of forest resources..."

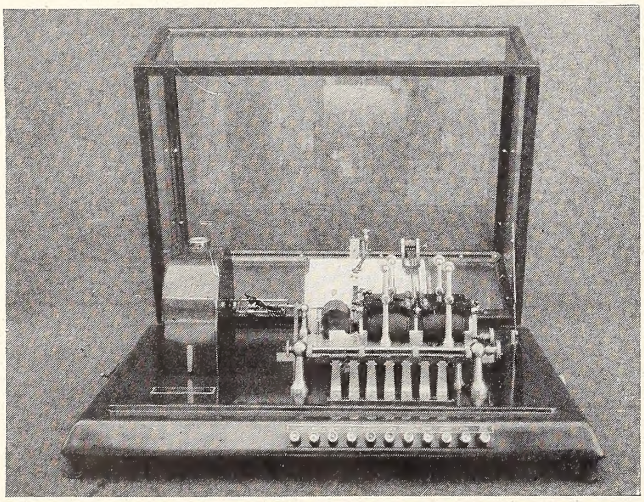
Says **ALBERT POTVIN**

ONE of the most elementary necessities in man's fight for survival is shielding himself against the inclemencies of the weather. Yet meteorology, the systematic study of atmospheric phenomena, is a comparatively new addition to the roster of sciences.

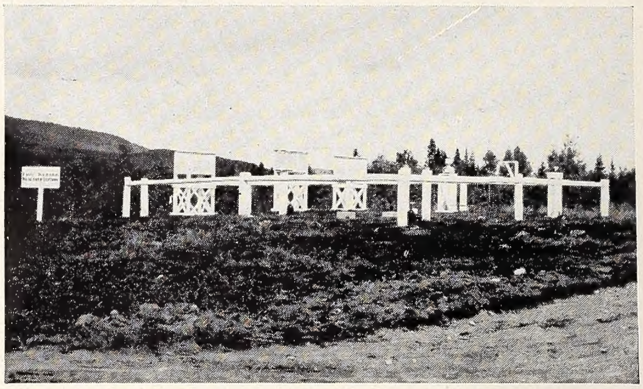
Not that the vagaries of nature failed to interest the people of earlier ages; no time or place in our world's history has been without its weather prophets. Farmers of old must have questioned the skies at daybreak and taken one last appraising look at the horizon before retiring, just as men of the soil will do today. Indeed, the origin of many cryptic sayings about the weather still currently expressed is buried in the remote past. Observers in ancient times, however, saw only the local effects of disturbances which, we know, may have extended over half a continent. Even with careful observations of local phenomena and their recurrence, predictions were bound to be loaded with speculation.

We know now that cold and warm air masses are constantly moving over the earth and that these are accompanied by areas of high and low pressure. In the office of the meterological service hourly reports are received from points hundreds or even thousands of miles away and, given this information, the weather-man can plot the movements of these ever-changing masses. He is thus able to predict the probable weather with a much higher degree of accuracy than was possible when knowledge of weather conditions were limited to the visual range. It was with the invention and development of the telegraph that synoptic reports were first made possible.

When man learned to fly and to cover long distances with great speed it became essential that he be better informed about the mysteries of the atmosphere. The growth of aviation stimulated a corresponding development in the science of meteorology. Permanent weather stations have been erected in some of the most isolated parts of the globe. Reports received from outposts such as Greenland, or the Aleutians, can often warn of storms before they reach the traffic lanes. This is of inestimable help to navigators who will arrange their schedule and course accordingly.



This instrument measures precipitation, duration of sunshine, wind direction, and velocity; is used only in U.S. Forest Service.



Fire Hazard Research Station, of the Dominion Forest Service, measures all the weather variables in its fight for forest protection.

Some of our basic occupations such as agriculture, fishing and transportation are more or less at the mercy of the weather. A whole nation may find itself without sustenance if the skies refuse to shower the land. Then, the efforts of many seasons may be washed away when the rain gods become too generous. Sailors and fishermen know only too well the hazard engendered by storms at sea and have due respect for the weather's temper.

Forest growth is not affected so much by daily weather variations but conditioned rather by the habitual state of the weather, the mean temperature and average rainfall — this we know as "climate". But the weather is indirectly responsible for tremendous waste of forest resources. Forest fires are meanest when forest fuels reach a low moisture content after prolonged periods of dry weather. That is why forest protection organizations keep a close check on rainfall and variation of temperature and humidity. They maintain weather stations of their own to assess the degree of inflammability in each district.

Inspection of Cloud Formations

Along with synoptic reports from widely scattered areas relayed to the meteorological station, the weather-man also makes use of local weather measurements in his forecasts. An inspection of the cloud formation can give a valuable indice of impending weather changes. The meteorologist has a scientific name for each type of cloud. The four basic categories are: Cumulus — compact, billowy clouds either floating as a solid mass or as independent segments; Cirrus — thin, whispy clouds at high altitude (this kind is often seen at the extreme ends of a moving front); Stratus —

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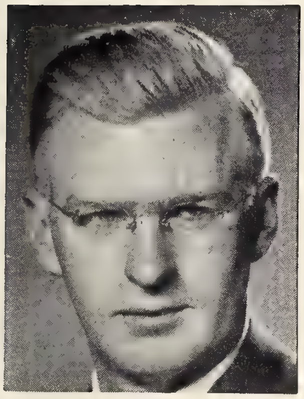
STICK INSECT IS *Low Animal Form But* CANCER STUDY AID



by

JAS. L. BAILLIE Jr.

HOW the lowly Stick Insect (Walking Stick") can be of value to mankind is shown in a recent report issued by the Banting Institute, Toronto.

Last September, Dr. W. R. Franks, in charge of cancer research at the Institute, launched an appeal over the radio and in the daily press for live specimens of "Walking Sticks", the eggs of which were required in his laboratory.

The response was instantaneous and thousands of Canadians, young and old, conducted a nation-wide search for these protectively-marked insects. How many twigs were mailed in by mistake has not been reported, but it is a fact that these queer insects bear a remarkable resemblance to animated sticks or twigs.

Dr. Franks reports that some 100,000 eggs were acquired for use in his investigations into the cause of cellular change, a principle closely associated with most types of cancer.

Stick Insects were recommended by entomologists of the Royal Ontario Museum of Zoology as suitable objects for the initial research, as cellular changes are most pronounced in the lower forms of animal life and as these insects pass through no fewer than eight stages during their brief life-span.

Already, a hormone extract which seems to cause the cellular change by which an insect passes from the egg to the larval and thence to the winged stage has been isolated.

Experiments are now being made on the newly-hatched larvae and when these tests on the "change extract" are completed, experiments on higher forms, probably commencing with frogs and mice, will be undertaken to determine if the substance controls cellular change in animals other than insects.

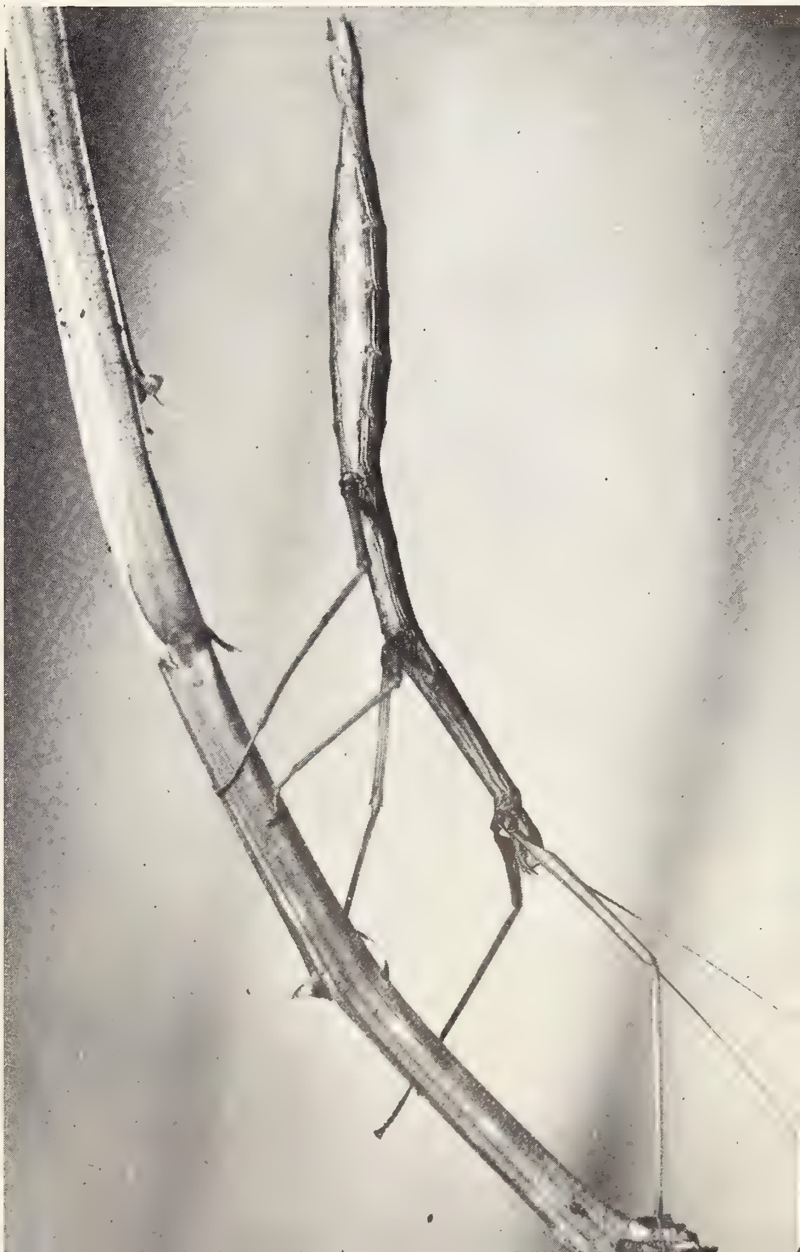
"Walking Sticks" are most abundant in the Tropics. Northern representatives are wingless and occur, like Praying Mantids, in two colour phases, green and brown. They feed on leaves and drop their eggs singly and promiscuously to winter among decaying vegetation on the ground. These insects become so abundant, on occasion, that trees in small areas are sometimes completely denuded by them and the sound of their dropping eggs resembles the patter of falling rain.

Birds Blown by Storms

Records of sea-birds being blown great distances inland by hurricanes are well-known to ornithologists but evidence of land-birds being storm-blown is rare indeed.

One author cites a case of several Summer Tanagers being reported in New England following a 60 m.p.h. wind storm which originated in Texas on April 13, 1929. These southerners seldom occur as far north as New England and the assumption that the storm-blown birds had originated in Texas seems a safe one, since individuals which might reach as far as New England normally would not attain that latitude until a month later than the 1929 "invasion" and because Summer Tanagers are quite common in early April at the centre of the storm's origin.

Stick Insect, looking like a twig. *Photo: W. E. Shore, A.R.P.S.*



This spring (1947) southern Ontario experienced an "invasion' 'of storm-blown birds and indications are that it was more widespread and involved more species of birds than any previous case of this nature brought to the attention of ornithologists.

At dusk on April 5 a cyclone had its origin in Oklahoma. It proceeded northeastward following a path 100 miles wide across Kansas, Arkansas. Missouri, Iowa, Tennessee, Kentucky, Illinois, Indiana, Ohio and Michigan and petered out in the vicinity of the Ottawa River on April 7. At Toronto the wind reached a velocity of 80 m.p.h. at 2000 ft. above mean see level on April 6.

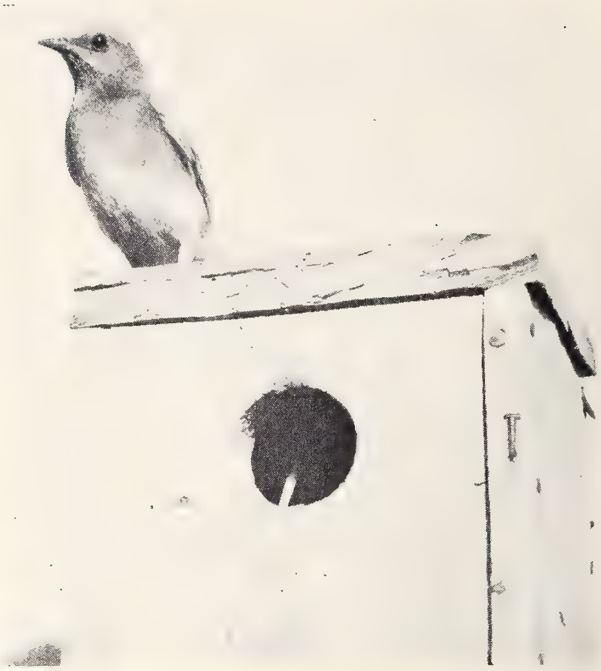
Small, night-flying migrants passing in normal migration over Oklahoma, Missouri, etc. at dusk on the 5th, were apparently caught by the force of the gale and blown the thousand miles northeastward to southern Ontario.

Nineteen Species

At any rate, naturalists on the following day and in April and early May observed no fewer than 19 species of birds at Port Dover, Meaford, Washago, Toronto, Port Hope, and Ottawa, Ontario at dates considerably in advance of their normal time of arrival or of unusual occurrence at any time in Ontario. The summer Tanager was again represented as were other southern and southwestern birds like Blue-gray Gnatcatchers, Baird's Sparrows, Worm-eating Warblers, White-eyed Vireos and Hooded Wablers, the last named in unprecedently large numbers, normally rare as far north or east as Ontario.

From Port Dover came the record of a Hooded Warbler, from Westboro a White-eyed Vireo, from Meaford a Red-eyed Vireo, from Port Hope a Redstart, from Washago Chimney Swifts, and from Toronto Blue-headed Vireo, Nighthawk Parula Warbler, Hooded Warblers (9), Wood Pewee, Blackburnian Warbler, Chimney Swift, Least Flycatchers (2), Red-eyed Vireo, Redstart, Black and White Warblers (3), Oven-bird, Baird's Sparrows (2), Blue-grey Gnatcatchers (2), Summer Tanager, Yellow Warbler, Worm-eating Warbler and Maryland Yellow-throat.

Blue-gray Gnatcatcher on nest. *Photo: H. M. Halliday.*



Bluebird at nest *Photo: Al Gordon*

The preponderance of records from the Toronto region can probably be attributed to the concentration of observers there, but certain it is that the number of birds carried along in the wind field on April 5 and 6 must have been tremendous and that the dispersal was widespread towards the end of the gale's path.

Some of the wind-blown migrants were picked up dead, but the majority seemed to be none-the-worse for their forced flight.

As the evidence on the relationship of storms to bird migration accumulates, naturalists are beginning to sense the reasons behind earlier observations of birds beyond their normal range or at abnormally early dates.

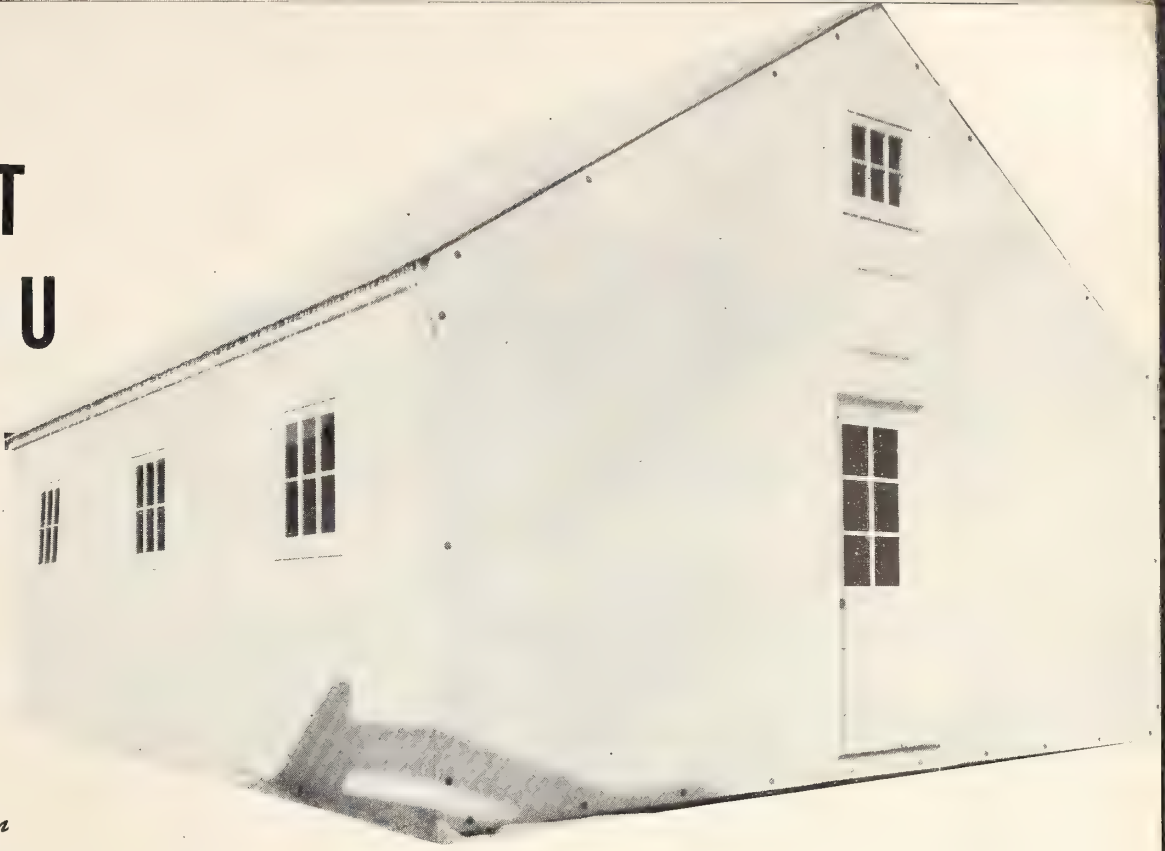
Habitat Destruction Affects Bluebird

More animals have been exterminated as a result of the destruction of their habitat than perhaps by any other agency. Bison could not flourish as wild animals on modern well-kept farms any more than ducks could thrive and multiply without the presence of suitable marshes and water.

Some animals, however, can adapt themselves to an environment changed by man or nature. A good instance is provided by the Bluebird, whose numbers have been seriously reduced in recent years by the replacement of wooden fenceposts by modern steel fences and by the advent of the European starling, both of which curtail the number of cavities available for Bluebirds' nests. Bluebirds, like House wrens, Tree swallows and other cavity-nesting species will utilize boxes placed out on fence-posts or in trees and respond readily to such encouragement.

The provision of nesting places is a form of conservation that is not only effective but can be practiced by individuals anywhere in Canada.

TAKE IT WITH YOU



This is a sectional, portable camp building designed by the Dominion Forest Service and built in its laboratories. It can move with woods operations.

by Norton Anderson

THE Dominion Forest Service has designed and built a sectional, portable camp building using plywood panels, light enough to be transported to any wooded area, and erected by an unskilled crew with a minimum of tools and equipment. The building should be useful in woods operations and possibly elsewhere.

House-hunting families will see in it a type of prefabricated home, but this camp building was not planned as a summer cottage or the shell of a permanent dwelling. The fact that fuel is plentiful in the woods made weather-tightness rather than insulation a prime consideration, with mobility of equal importance. It was originally planned for use by the Dominion Forest Service.

Infinitely Extensible

As designed, the building is infinitely extensible in length. All roof panels, side wall panels and centre end wall panels are identical; the end side panels are identical in shape, being right and left-handed from the same form.

Part of interior, showing spaciousness.

A full scale prototype is on display at the Forest Products Laboratories, Isabella and Metcalfe Streets, Ottawa, where it was built in 1946 after changes were made on a one-eighth scale model. It was based on sketches prepared by the Dominion Forest Service. Erection of the model building was accomplished in below-zero weather by a crew of six men in approximately twelve hours on a level site. Only tools required were two spanners, a hammer and a screw driver.

The building is of sound, rigid construction and provides an unobstructed floor space 20 by 24 feet, open to the roof. Sheating material is one-quarter inch plywood for walls and roof. The walls are double-sheathed on a 1⅝ by 1⅝ inches framework with 2 x 4 studs at the edge of the panel and 2 x 4 plates at the top which act as a core grill. The roof is single thickness on 2 x 4 rafters. Roof panels are interconnected with crossed sway braces to prevent sagging. The floor is 1⅛ inches tongued and grooved fir on 2 x 4 joists in panels 8 by 10 feet. The building is supported by five 4 x 6 sills running lengthwise to the building, or alternatively by an equal number of flatted logs.

No Insulation

Little overhang was provided at the eaves in order to avoid formation of ice during winter weather. The roof is not insulated and any snow falling on the roof must melt. It was felt that with an overhang the water would freeze and back up.

Sections, which are bolted together, may be readily taken down for transportation to a new site. The design of wall panels is such that the various projections at the windows do not extend beyond the depth of the 2 by 4 inches framework at the edge of each wall panel, thus permitting flat piling.

The roof has no overhang on the ends and very small overhang at the eaves. Exterior protection consists of white paint on the walls and light rubberoid roll roofing for the roof.

Weights of the sections are as follows:—

Name	Weight per panel	Number per 8 foot length of building	Weight per 8 foot length of building	
Roof	279	2	558	
End-centre	180	2*		360*
End-side	172	4*		688*
Side Wall	165	2	330	
Floor	287	2	574	
Sills	200	1	200	
Battens, strips, cap braces bolts	98	1	98	
Total per 8 foot length of building			1760 lbs.	1048 lbs.

*Weight per complete building regardless of length. Therefore the weight for a building 20 feet in width and L feet in length is:

$$W + 1048 = \frac{(L \times 1760)}{8} \text{ lbs.}$$

The shipping volume of the 20 x 24 feet model building unprotected by any crating is:—

2 End walls	192 cu. ft.
2 Side walls	136 cu. ft.
Floor	200 cu. ft.
Roof	204 cu. ft.
Sills	20 cu. ft.
Miscellaneous	10 cu. ft.
Total Volume	762 cu. ft.

Cost of material and labour, including trial erection, is as follows:—

Material	Retail Cost
Lumber	$250.29
Plywood	243.20
Hardware	53.69
Roofing & Paint	66.71
Total Material	$613.89
Labour	
588 man hours	$500.00
Total — Erected	$1113.89

Not a stage prop—portable building on the way up.

If a number of buildings were produced, costs for direct labour could be considerably reduced—material costs could also be reduced by mass buying or discounts.

Many logging companies in Canada have been experimenting with several types of huts and buildings which can be easily transported as operations in the woods move to other sites. Some companies have found it practical to rebuild staff quarters, offices, at each new site. One company has constructed portable huts using Ten-Test. But always there has been a great need in the logging industry for a building to be quickly erected and dismantled, packed and carried on available transport.

Few Minor Changes

While the building is in every way suitable for the purposes for which it was designed, a few minor changes could be made to increase its usefulness. Roof overhang at the gable ends is only two inches. Arrangements could be made to provide for a minimum of a four-inch overhang at each end to afford reasonable protection at the top of the end wall. The sash frame can be one-eighth inch deeper to provide for manufacturing inaccuracies in wall thickness. It is suggested that a standard corner board arrangement be used, preferably of the same material used for strips over the panel joints.

Dominion Forest Service authorities point out that although the camp building was designed to fill forestry needs, companies having operations in the woods may, depending upon their local conditions, wish to adapt the hut for their own use. Hunters, fishermen, contractors, and others who are looking for a movable camp may wish to study possibilities of this building. The Dominion Forest Service invites inquiries.

FOREST & OUTDOORS
the magazine of
The Canadian Forestry Association
1018 Canada Cement Building
Montreal Canada
Subscription: $2.00 a year. Two years: $3.50.
Authorized as second class mail, Post Office Department, Ottawa.

All proceeds of 'Forest and Outdoors' are devoted to the welfare of Canada's woods, waters and wildlife.

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How is it, Joe, that you have been cutting more logs than I but your woods are fine and mine almost gone?
You have butchered your forest; and a dead cow can bear no calf. I cut only the right trees at the right time, so that nature does the restocking.

Woodlot management—aiming at continuous and increasing profit through proper use of suitable cutting methods . . .

Words Set in Gold

Practical Woodlot Management, by Alexander M. Koroleff, illustrated by Rene Kulbach, is one of the first, simple, authoritative textbooks on the subject in Canada. It's not hard reading, and the pages are studded with profit for woodlot owners—but the writing came hard, in fact the author poured 40 years' experience and study into its preparation.

Several thousand copies have already found their way into the hands of woodlands managers, farmers, county authorities, forest industries, banks, forestry officials, rangers. Those interested in the development of Canada's forests should see that a score more thousands are read and studied. This noted forester, Koroleff, has given his services, has published the booklet himself.

Authorities and experts in Canada, the United States and abroad, have lauded this writing, have commended it for reading.

The book contains 60 pages and 51 clear illustrations.

Single copies may be obtained for 75 cents; quantities of 100 or more — for distribution where they will bring benefits — for 65 cents each, prepaid. Orders should be sent to the Canadian Forestry Association, 1018 Canada Cement Building, Montreal, cheques being payable at par in Montreal; or money orders but no postage stamps.

Forests should be used intelligently—not abused.

As proof of the value of this booklet to the 400,000 woodlot owners in Canada, it has been learned that the American Forestry Association is about to publish an American edition of PRACTICAL WOODLOT MANAGEMENT, by Koroleff, with slight alterations to mention American native trees.

THE AUTHOR

Alexander M. Koroleff, 57 born in Russia and graduated from Imperial Forestry College of St. Petersburg (Leningrad), worked for the Imperial Forest Service until World War I.

Left Russia, 1919, *graduated from College of Forestry, University of Washington, and Forestry School, Yale University. Working in all phases of lumbering to acquire American experience, served as lumberjack and later did research work for the U. S. Forest Service in Lake states and Pacific coast, also teaching at University of Minnesota.*

In 1927, *became manager of woodlands section of Canadian Pulp and Paper Association; and later also director of woodlands research in Pulp and Paper Research Institute of Canada. He is still there.*

NOTED FORESTER

A. M. Koroleff

Lake trout fishing, Crean Lake, Prince Albert National Park, Sask.

All photos: National Parks Bureau.

FOR THOSE MEATLESS DAYS

by **Dr. D. S. RAWSON**

OUR Canadian National Parks offer the angler a great variety of game fish. In the western mountains, Jasper and Banff National Parks offer no less than six species of trout. The fighting rainbow, the cutthroat, and the eastern brook or speckled trout are highly prized by most anglers. The great lake trout, the Dolly Varden and our European friend, the brown trout, add variety and interest to the group.

Waterton Lakes National Park, in the extreme southwest corner of Alberta, offers fishing for five species of trout, not including the brown trout.

There are many places in Canada where the hard-pressed taxpayer can get a return on his money — National Parks make it easy for all kinds of fishing. . .

The cutthroat trout is common to the four national parks in British Columbia. In addition to the cutthroat trout, Yoho National Park offers angling for rainbow and lake trout and Dolly Varden, while Kootenay Park tempts the angler with

Fishermen taking herring from nets, Cape Breton Islands National Park, N.S.

White shark caught with rod and line, Shelburne, N.S.

Boys fishing — Summerside Harbour, Prince Edward Island. They'll grow into big fishermen.

rainbow trout and Dolly Varden. Glacier National Park provides Dolly Varden in addition to cutthroat trout while Mount Revelstoke National Park offers rainbow trout.

Rocky Mountain Whitefish

In addition to the species of trout, Jasper and Waterton Lakes Parks also provide angling for pike, while all seven western mountain parks have waters inhabited by the Rocky Mountain whitefish. This species, while not a true game fish, nevertheless provides sport for anglers at certain seasons and is a welcome addition to the pan.

The lakes of Prince Albert and Riding Mountain National Parks, in the prairie region, are the home of large pike, specimens over 15 pounds in weight being taken on occasion. Prince Albert Park also provides angling for large lake trout, pickerel and an introduced species, the small-mouth black bass. The lake trout reach a weight of 35 pounds in the larger lakes.

Adult lake trout are being introduced into Clear Lake, in Riding Mountain Park. Current information indicates satisfactory growth in the trout introduced, as was to be expected, since suitable food organisms were present. Suitable spawning areas are present in the lake.

Famous among the game fishes of Eastern Canada are the small-mouth black bass and the giant maskinongé, both rivalling the mountain trout in popularity among sportsmen. Georgian Bay Islands and St. Lawrence Islands National Parks, in Ontario, provide fishing for these species in their native waters.

Point Pelee National Park offers fishing for pike in its ponds and for pickerel and small-mouth black bass in the adjacent waters of Lake Erie.

Swordfish and Atlantic Salmon

The Cape Breton Highlands National Park in Nova Scotia makes a unique contribution to sport fishing in Canadian National Parks with its Atlantic salmon, and swordfish. It also provides good angling for eastern brook trout.

Several of the small lakes and ponds in Prince Edward Island National Park contain brook trout and afford opportunities for angling. Deep-sea fishing is also available in coastal waters adjacent to this park.

Let it not be assumed that the present fishing has been achieved without labour. Behind the scenes lie many achievements in solving problems of fish culture and planning.

Our National Parks are fortunate in the possession of those first essentials for good angling, innumerable lakes and streams and excellent native game fishes. With the fish culture service doing its part and with a careful yet progressive administration, we may confidently expect that the lakes and streams in Canada's National Parks will continue to provide angling of excellent quality.

(First of two articles. Next month Dr. Rawson will tell the fascinating facts about fish culture and planning in the National Parks).

HE'LL NEED FORESTS TOO!

If you look to the bush country for recreation or business, you'll realize how much it will mean to the youngsters of today if you help to save the forests for tomorrow. Above all, protect the forests from fire.

Ontario has been abundantly blessed with natural resources, which, if not properly protected, can be quickly exhausted. Every year, for example, thousands of acres of trees are destroyed because someone is not careful with fire.

Forests mean much more than a pleasant place to holiday . . . an attraction for tourists . . . shelter for game animals and fishing haunts. They mean more than a source of lumber and paper products, and jobs for thousands of people, vital as these are to national welfare.

Climate is tempered—extremes prevented—by forest areas. They store water too—help to keep rivers and streams from dangerous and costly flooding in spring time. They spread the flow of water more evenly through the year. That means they help to ensure a year-round supply of Hydro power for you.

Protect the forests. They serve you well.

SOME WAYS TO BE CAREFUL ABOUT FIRE

- *Break each match in two before you throw it away.*
- *Be sure your discarded cigarette is really out.*
- *Keep camp fires small, and always in a safe place.*
- *Before you leave, put the fire DEAD OUT with water.*

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

Miniature boat-building is an important trade by craftsmen.

Outstanding French-Canadian Wood-Carvers At St. Jean Port Joli, Quebec

One of the great centers of French-Canadian handicraft is famed St. Jean Port Joli, on the south shore of the St. Lawrence river. Here may be found some 60 wood-carvers whose work is displayed in Canada and abroad.

Famous among the carvers are Médard and Julien Bourgault who devote their talents mostly to religious art. Then there are younger ones, such as Paul Emile Caron, with habitant-type and other statuettes already well known beyond Canada.

Influence of the Bourgault school of wood-carving has been reflected in the development of great numbers of carvers now working in other parts of Canada. They have expanded this once-regional activity into a trade of wide proportions.

As a miniature boat-builder, Eugène Leclerc, also of St. Jean Port Joli, has gained a wide reputation. Many of his little boats have travelled to New York, New Orleans and Los Angeles.

Skilled wood-carvers at work in St. Jean Port Joli.

You've never really hunted 'till you try

YOUR

CANADA

Moose, Caribou, Sheep, Goat, Bear, and other game . . . Plenty of Duck, Geese and Partridge.

Planning a hunting party? Canadian National spans the continent—can tell you where good hunting is! And take you there in comfort. Write, phone, get in touch now with any Canadian National office. Or write J. S. McDonald, Canadian National Railways, Montreal, specifying type of game and territory preferred, time available.

Ask

CANADIAN
NATIONAL
RAILWAYS

To Everywhere in Canada

You can rebuild a city . . .

but You can't rebuild a Forest

History is full of accounts of burned cities rapidly rising anew from the ashes and rubble. *Not so with a forest:* forest fires destroy millions of dollars of timber—sear the rich, exposed earth —demolish vast reservoirs and storage basins—abolish needed industrial growth and indirectly cost citizens vast sums in revenue.

Nature shares her wealth with man. It is up to him to do his share by protecting and conserving his forests.

* * *

Watch your matches and cigarette embers.

* * *

Stamp out your campfire . . . rake it . . . douse it with water.

* * *

Fire is fatal to forests.

THE CHICAGO FIRE,
Oct. 8-9-10, 1871

Burned for three days over a three-square-mile area while 300,000 citizens fled for their lives. It destroyed 17,450 buildings, killed 250 people, and caused property damage totalling $169,000,000.

ENGINEERING · CONSTRUCTION · TRANSPORTATION
The Shawinigan
WATER AND POWER CO.
ELECTRIC POWER · CHEMICALS

SHAWINIGAN CHEMICALS LIMITED QUEBEC POWER COMPANY

associated and subsidiary companies

This is one of a series of ads designed to show the importance of forest conservation.

Invading Grizzly King's Playground

(Concluded from page 168)

Further down stream we caught sight of a solitary bachelor promenading down the gravel bars. Seemingly intent on going places, he didn't even stop to fish. We pursued him in our canoe, floating like a log when there seemed any danger of him seeing us, poling furiously when bruin was determinedly swinging his head and marching down-stream.

Ten minutes of pursuit ended when we met at the confluence of the stream at the lower end of an island.

When he saw us he lifted on his hind feet, turned and splashed away in a rollicking manner, plainly indicating that the joke was on him.

We had just finished navigating a tricky riffle when a mother bear stood up for a good look at us, cuffed two cubs into the woods, snorted and followed them.

We had seen so many bears that every time a red or black rock, or a stump, or a bit of mossy log came under our attention, we reacted as to bear. In bear-concentration I let the canoe strike a rock — we delayed so much we got trapped in the river with the tide — and were six hours late in getting away, forcing us to make a night run to get home.

Dribble Pool, Harry's River, Newfoundland.

NEWFOUNDLAND SALMON FISHING

"I have given you lands to hunt in,
I have given you streams to fish in,
Filled the marshes full of wild fowl,
Filled the rivers full of fishes."

Longfellow.

In Newfoundland, salmon fishing in the rivers with fly and rod is justly famous. The North Atlantic Blue Salmon, coming up the rivers to spawn, are noted for their fighting abilities.

The protection of the forests of Newfoundland benefits the fishing streams by regulating the flow of water and providing shade for the pools in which the salmon lie, gathering strength for their long journey from the sea to the spawning grounds in the upper reaches.

(Photo of fishing at Dribble Pool, Harry's River, Newfoundland, by Shelton, courtesy Newfoundland Tourist Development Bureau.)

FAIRBANKS-MORSE

WATER SYSTEM and ELECTRIC PLANT

Gives you more leisure time — Does away with tiresome chores.

Equip your camp or cottage with a FAIRBANKS-MORSE Water System and Electric Plant, and really enjoy your summer! No longer need you or your family spend your holidays pumping and hauling water! With a F-M Water System you have all the water you need at the turn of a tap! No more worrying about accidents in the dark, or the danger of kerosene lamps overturning, particularly when your family is alone! A F-M Electric Plant brings you all the conveniences of electricity at surprisingly low cost. Plan now for trouble-free, work-free vacations.

Fill in and mail the coupon today for complete information about F-M Electric Plants and Water Systems.

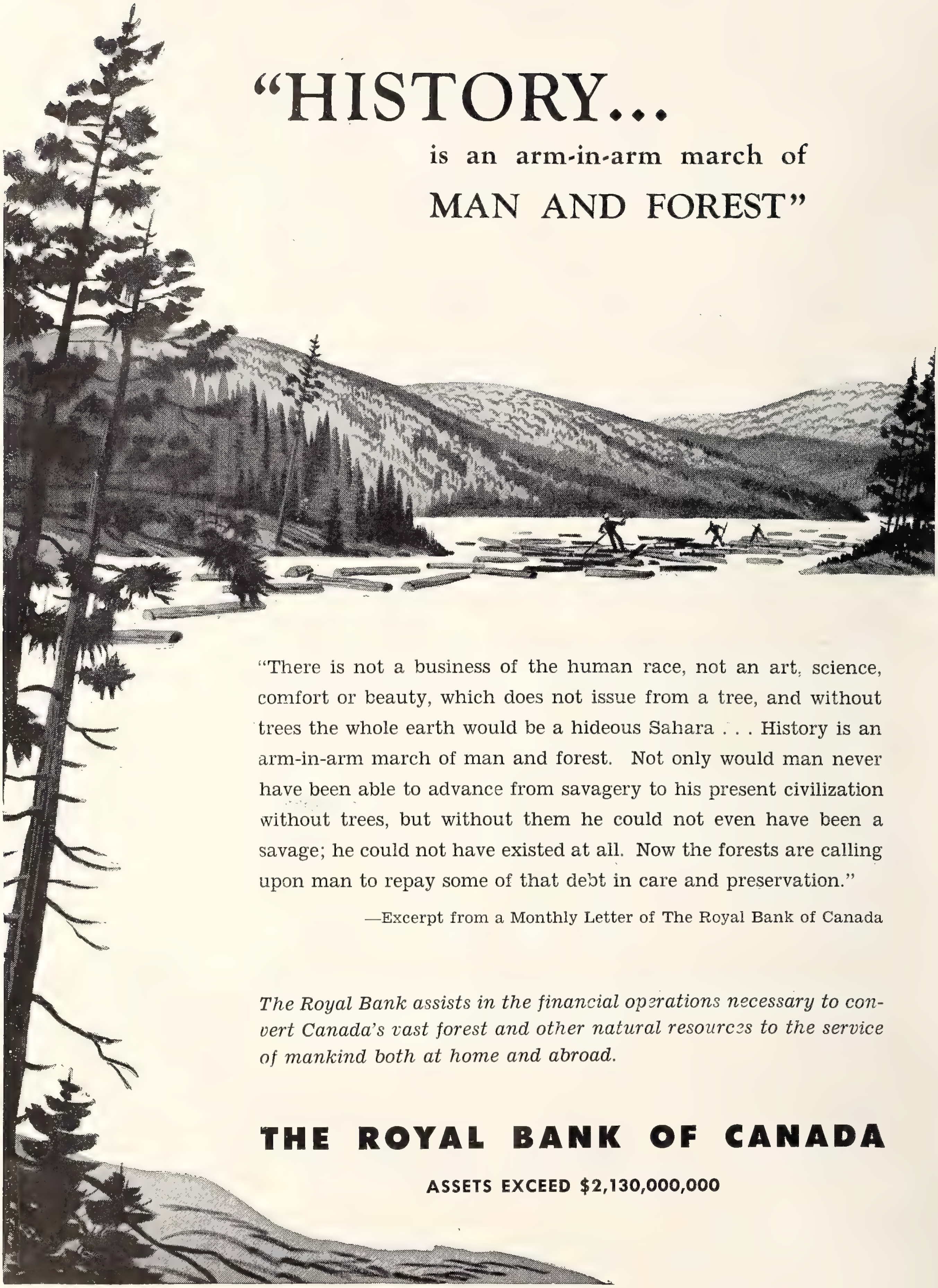
Running water for a few cents a day

Electricity for all needs at small cost

The Canadian FAIRBANKS-MORSE Co. Limited
980 St. Antoine St., Montreal, P.Q.

Please send information about
☐ F-M Water Systems ☐ F-M Electric Plants
Name ....
Address ....

"HISTORY...
is an arm-in-arm march of MAN AND FOREST"



"There is not a business of the human race, not an art, science, comfort or beauty, which does not issue from a tree, and without trees the whole earth would be a hideous Sahara . . . History is an arm-in-arm march of man and forest. Not only would man never have been able to advance from savagery to his present civilization without trees, but without them he could not even have been a savage; he could not have existed at all. Now the forests are calling upon man to repay some of that debt in care and preservation."

—Excerpt from a Monthly Letter of The Royal Bank of Canada

The Royal Bank assists in the financial operations necessary to convert Canada's vast forest and other natural resources to the service of mankind both at home and abroad.

THE ROYAL BANK OF CANADA

ASSETS EXCEED $2,130,000,000

CLIMATE CLUTCHES OUR ECONOMIC THROATS

(Concluded from page 170)

clouds spread out in single or multiple layers; Nimbus — clouds in which moisture condensation reaches the point of precipitation.

Shall we ever be successful in taming the weather? The most optimistic of scientists could hardly answer this with a categorical "yes" because the forces that set up these disturbances, such as solar radiation and the rotation of the earth are too great for man to control. But we have succeeded in some measure in channelling it to our advantage and to ward off its blows. The wind was put to work many centuries ago; emergency flood control dams have been built to take care of unusual rainfall; and the lightning rod protects our buildings from the electrical storm hazard. "Rain-makers," who for a fancy price offered their services to drought-striken communities, were usually downright frauds, but artificial precipitation has been successfully carried out of late by peppering clouds from the air with dry ice crystals and other 'precipitants".

Meteorology will likely remain one of the "speculative sciences", but it will always be a vital study despite its present limited accuracy. Our well-being is too closely linked with the weather for meteorology to be neglected.

93% more *Energy*

● Great news this season for all who enjoy the out-of-doors! Recognized tests prove that the *new* "Eveready" Flashlight Battery provides 93% more energy than even famous "Eveready" Batteries of previous years. This means almost double the long life—*at no extra cost!* Ask for to-day's high energy "Eveready" Batteries at dealers everywhere.

CANADIAN NATIONAL CARBON
COMPANY LIMITED

SANDVIK Pulpwood Saws
Bow Frames and Tools
Make Hard Work Easy!

SANDVIK Saws and Hand Tools are ideal on small timber and for cutting firewood. Send for our folder on woods tools and our up-to-date filing instruction pamphlet.

DISTRIBUTORS:
SANDVIK CANADIAN LIMITED
426 McGILL STREET MONTREAL, P.Q.

JET-PROPELLED OUTBOARD MOTORS NOW IN CANADA

Jet-propelled outboard motors are now a reality in Canada. A number of Canadians have already received delivery of English-built jet motors — trade marked "Aquajet" — heralded as "the only jet-propelled outboard motor in the world". All of which may save you from complete mystification if you happen to see a light boat skipping over the water this summer without evidence of sail, oars, or the usual "putt-putt" of conventional motors. You can safely assume that it is being pushed along by a jet of water, thrust to the rear at the rate of about five or six tons per minute.

The first of Canadian production are expected to be on the market in time for the 1947 Christmas trade. Up to now the 3 h.p. size is the only one available, but it is planned to also produce larger sizes, from 8 h.p. to 22 h.p.

Absence of Propeller

The 3 h.p. jet motor is said to drive an average fishing boat at from three to eight miles an hour, and to throttle down to ideal trolling speeds. Silent operation and absence of any propeller to tangle in weeds are features stressed to fishermen. No oiling or greasing is required — no shear-pin to replace if you happen to hit an underwater obstruction. The motor just bounces over such obstacles. The boat is steered or may be completely reversed by the jet, which is said to be "more than 70 per cent efficient".

The power head is a single cylinder, 2-cycle gasoline motor which drives directly a submerged axial-flow pump. The pump throws water rearward at the rate of five or six tons a minute through a nozzle or jet.

Today we Live in a Greater Canada

Foreign Flags over OTTAWA

TELL OF CANADA'S IMPORTANCE IN THE MODERN WORLD

20 years ago there was none . . . ten years ago only four . . . TODAY there are 24 Ambassadors, High Commissioners and Ministers representing their governments at Canada's capital. Striking evidence, that, of Canada's new place among modern nations!

We emerged from the war a far greater country than we ever were in pre-war days. Peacetime accomplishments are maintaining that new greatness today.

In the 80's we had a High Commissioner in London, and an Agent-General in France—but we had little say in our foreign affairs. Canada negotiated with foreign powers through the British Foreign Office, with Empire countries through the British Colonial Office.

In World War I Canada won the right to a separate signature to the Treaty of Versailles. That made 1919 an important date for us. Then, in 1931, we and the other Dominions gained recognition as equal partners with the United Kingdom.

World War II...Canada's achievements in battle overseas and in production at home won us world recognition as a modern power. The great majority of the embassies at Ottawa were established during the war years.

GUY PURSER is a young Canadian who started in 1931 with a gasoline station. Today, as a result of applying his knowledge of motor cars, his energies and talents to the full, he has developed a unique business in automotive service. His success has enabled him to fulfill a long nourished ambition to train and ride his own jumping horses, taking part successfully in open competition, and to turn his dramatic abilities profitably to playing leading roles in motion pictures.

GUY PURSER says: *"I'm glad I decided to follow my career in Canada. There were opportunities when I started out. There are much greater ones now. No longer need young Canadians go beyond our borders to follow the road to success. It lies before them in Canada today."*

ONE OF A SERIES PRESENTED BY

Molson's

IN THE INTERESTS OF A GREATER CANADIAN APPRECIATION
OF CANADA'S PRESENT GREATNESS

Wildlife can be increased for our gain — our fifth natural resource. Here a beaver is busy as usual.

Mainsprings of Canada's Wealth

(Concluded from page 166)

granted only in relation to fishing and shipping. Perhaps the point to remember is that land values have been washing into the sea for hundreds of centuries and now modern science can look to these raw materials available along our 14,000 miles of shore line.

Inland water is so vital to agriculture, forest, water power, navigation, fisheries and recreation, that the resource serves very well as an example of integrated uses. The enormous network of lakes and rivers greatly facilitates the profitable use of water in Canada. This is the place to mention also that forest cover is highly important in controlling water flow and water tables.

Fortunately, the water power locations are favourable, with the result that installations already have reached 10,000,000 hp., out of perhaps 50,000,000 hp., total resources. Undoubtedly, the St. Lawrence Waterways will be developed in the not distant future to provide nearly 5,000,000 hp. additional for the centrally-located populations of Canada and the United States. Engineers should bear in mind that national economy warrants the construction of hydro-electric plants with special reference to periods of unemployment, because the high capital investments then provide work in the factories and on the power sites for thousands of men who otherwise might be on relief. As everyone knows, the operating costs of hydroelectric plants are low, and there is no exhaustion of the water resource over the years.

Wealth of Mines

The only reason for leaving mineral resources to the end of the list is to maintain our original analogy. In most cases minerals have to be taken from the body of the earth, and fortunately the third dimension greatly extends the scope. Always we must remember that this is the only expendable and non-recurring resource, so Canada is lucky in having such a variety of metallic and non-metallic raw materials.

The exciting rise of the mining industry during the past 10 or 20 years has brought the mineral resource to the level of the forest resource, each equivalent to about 20 per cent of the primary products of all natural resources.

(Summary of Talk to Junior Section, Engineering Institute of Canada, Montreal, 24th February, 1947)

"EXPORT"
CANADA'S FINEST
CIGARETTE

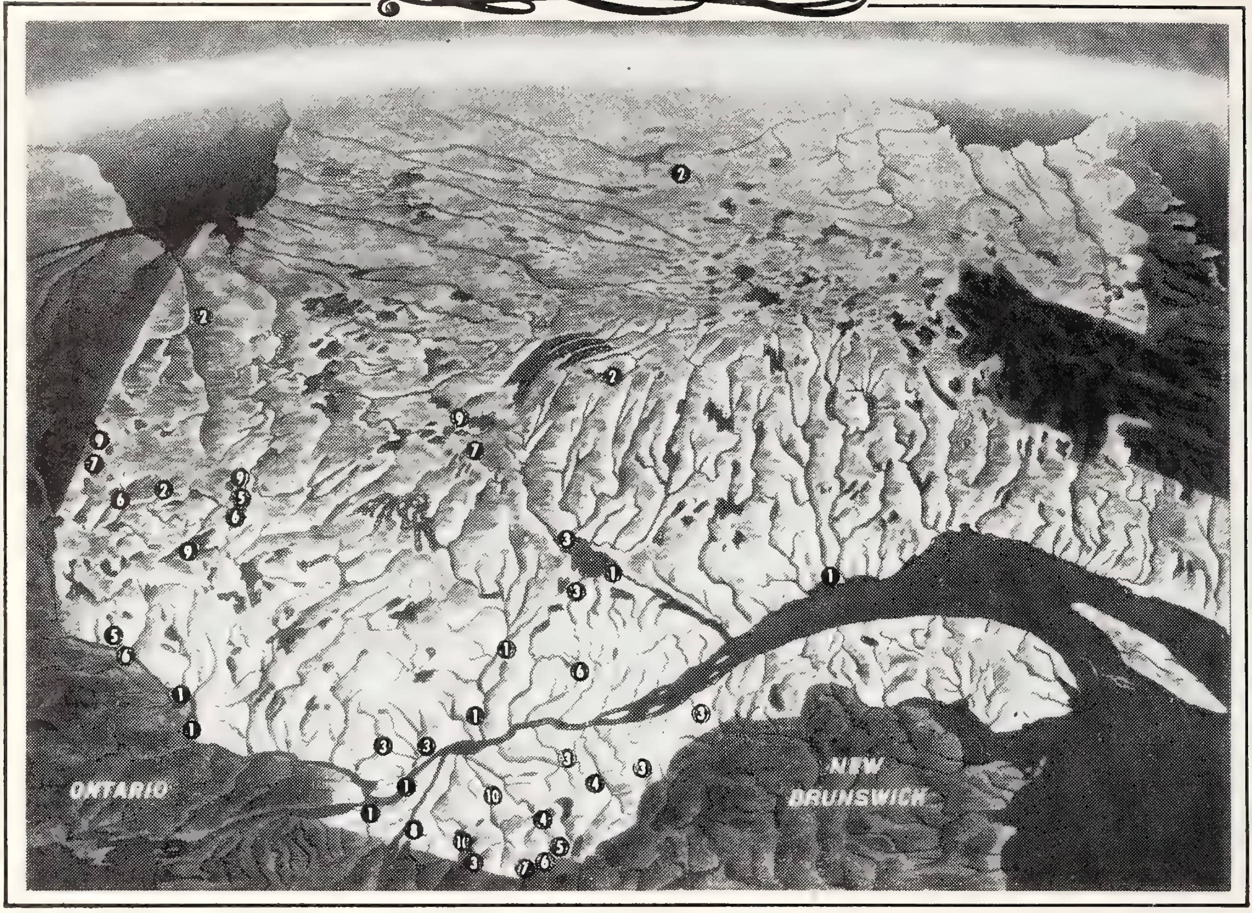
MARK OF MERIT
ON
FINE
PRINTING
PAPERS

PROVINCIAL PAPER LIMITED
Specialists in the manufacture of Fine Printing Papers
Coated **Litho** **SC Book** **Offset**

Map Legend...

1. Water power
2. Furs
3. Mixed farming
4. Asbestos
5. Lead
6. Zinc
7. Copper
8. Dairy farming
9. Gold
10. Manufacturing
11. Pulpwood
12. Fishing

NEW HORIZONS IN *Canada Unlimited*



One of a series of maps "New Horizons" copyright by O'Keefe's

QUEBEC *Canada's Largest Province*

An area of 594,860 square miles makes Quebec the biggest province in Canada. Contrary to general knowledge its agriculture is extensive, one-third of Canada's dairy production originates in Quebec. Quebec's large labour force and favourable geographical position makes it the second largest manufacturing province. It produces more than half the electrical energy of Canada from an estimated reserve of 17 million horsepower and its forests provide the pulpwood for ¼ of the world's newsprint. Its mineral resources are world renowned, gold, silver, lead, zinc, and asbestos being produced in large quantities.

The province of Quebec illustrates the tremendous potentialities that lie within the New Horizons of Canada Unlimited. Canada is a land distinguished by the inspiration it gives to the ambitious and the scope it offers to young men in search of opportunity.

O'Keefe's
BREWING COMPANY LIMITED

F123

Between 400 and 500 men and women are engaged in forestry research in Japan at the present time. Of these, more than 200 are employed by the Bureau of Forestry and 75 each by the Imperial Bureau of Forests and Estates, and the Hokkaido Station, and by seven prefectural stations combined under the Home Ministry.

• • •

It is estimated by a well-known geologist that it requires 10,000 *years to form an inch of top-soil. The Mississippi river carries* 730 *million tons of soil into the Gulf of Mexico annually. The Missouri river basin has lost an average of seven inches of top-soil in 24 years.*

• • •

Wet-strength map paper, developed during the war by the application of resin bonding, has potentialities of a wide range of peace-time uses varying from outdoor advertising to bed sheets and washable towels. Some unique features of this high wet-strength paper are its low expansivity, high opacity, writing quality, and low acidity.

— *Pulp & Paper Bulletin.*

• • •

Radio telephone communication which revolutionized the tug boat industry on the British Columbia coast has played a very important part in the transportation of logs. Now the same principle with truck operations has been established by the North West Logging Company in its operations near Parksville, B.C.

The new set-up consists of a small radio transmitter that monitors to the telephone office. With this hook-up, the drivers of the trucks, which are equipped with monophones, can be contacted.

— *Timber of Canada.*

• • •

Growing wild in desert regions of the southwestern United States is an oil-producing plant of considerable promise, locally called the goat-nut or JOJOBA (both J's pronounced as in Spanish, with the sound of an H). Known to the early Indians there, who used its fruit for food and beverage, it was adopted to a small extent by white settlers, who also used its oil in cookery and medicine. Only in recent years, however, have its commercial possibilities become evident.

— *New York Botanical Garden.*

• • •

Although there are comparatively large reserves of standing timber in the Yukon, and a fairly high potential yield, the prospects for greatly increased exploitation are not bright. Since the timber is located in long. narrow fringes along the watercourses, cost of logging operations will be higher than if the timber were found in more compact blocks. Even some of the lumber used at Whitehorse is imported from British Columbia through Skagway.

• • •

X-Pando Corporation of Long Island, New York, announces a new product for fishermen with the development of a liquid for the treatment of dry flies. It is named "Dri-Fly" and an application makes a fly impervious to water penetration for an entire season. It is also claimed that when flies are dipped in the solution, moths and other insects will shun them, yet after drying it is odorless. The liquid is not an oil. It may also be used to treat fishing nets, lines, cloth, canvas or wood surfaces to make them water repellent.

• • •

Forest fire losses in British Columbia during 1946, amounting to $357,984, *was only about 25 per cent of the previous year's figure. Accessible merchantable timber killed is placed at* 63,992,000 *board feet, of which* 16,150,000 *board feet is salvagable.*

Smokers were blamed for 326 *fires, and brush burning caused* 117; *industrial operations, including logging, were the source of* 38, *and campers were responsible for setting* 263.

• • •

The weasel is the most blood-thirsty killer of all North American animals. His favourite pastime is to run amuck on a killing spree. He does not have to be hungry to kill. He never thinks of storing food, for there is nothing provident in his nature.

• • •

Today, more than 500 wood processing plants, including some 200 sawmills, are located in Manitoba. Many of the plants supply a product which is in demand in a certain area of the province; hence, a fish-float factory is located in the interlake district, close to Manitoba's large inland fishing district, and a cheese-box factory is located in southeastern Manitoba. Furniture making has become an important rural industry in recent years.

• • •

During 1946, a total of 13,030 farmers obtained loans totalling nearly $10 million under the Farm Improvement Loans Act. Loans for purchase of farm implements and farm trucks accounted for $7,488,347. Included in the total are loans to 1,008 farmers to clear and break an estimated 50,000 acres of new land.

• • •

THE CATCH OF THE SEASON
OH BOY! WATCH ME HOOK A REAL NOURISHING BREAKFAST!
FIXIN' AUNT JEMIMA'S IS EASIER THAN FISHIN' IN THE SHADE!
YOU'RE MAKING THE BEST CATCH OF THE DAY!
HEY, MOM- DROP SOME OF THOSE FLUFFY PANCAKES RIGHT HERE!
IT'S ALWAYS A HAPPY DAY WHEN YOU START WITH AUNT JEMIMA'S!
REMEMBER OUR FIRST DATE...
WHEN I FELL FOR YOUR LINE AND YOU LANDED ME WITH AUNT JEMIMA'S!
LAWSEE! folks sho' whoops with joy over AUNT JEMIMA PANCAKES!
AUNT JEMIMA READY-MIX PANCAKES
AUNT JEMIMA READY-MIX PANCAKES

SATISFYING EASY TO FIX HOLIDAY LUNCH MENU

Aunt Jemima Secret recipe pancakes with honey and bacon strips
Milk
Fresh Apple Sauce

• • •

Just add milk or water, stir and pop 'em onto the griddle—and you get temtillatin', light pancakes—so nourishing, too!

For your quick meal shelf, get Aunt Jemima Ready-Mix in the regular size box or the economical 3½ lb. family size package.

THE QUAKER OATS COMPANY OF CANADA LIMITED

FORESTRY ASSOCIATION APPOINTS EXECUTIVE

Norton J. Anderson, of Winnipeg and Ottawa, has been named Assistant General-Manager of the Canadian Forestry Association. He assumed his duties in Montreal on April 15.

NORTON J. ANDERSON

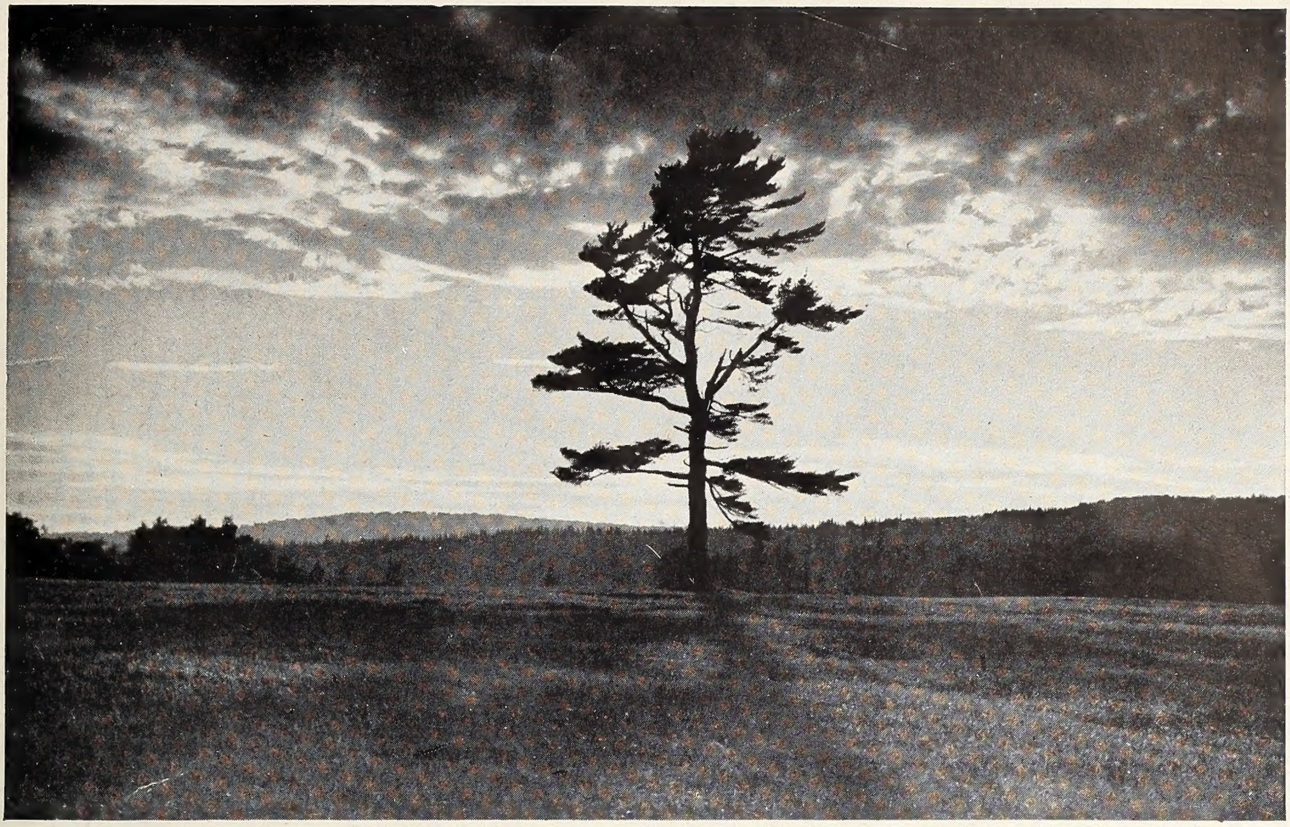
A newspaper writer, editor and publisher, he was Chief Public Relations Officer for the Canadian Army in Ottawa, and an executive with the Wartime Information Board of Canada. He carried out the Canadian end of information at the first U.N. meeting in San Francisco in 1945, and on return to Canada set up the information policy of P.I.C.A.O. in Montreal.

Experienced Newspaperman

Having founded his own weekly newspaper in Selkirk, Manitoba, where he was born and educated, Mr. Anderson worked for publications such as the *Winnipeg Free Press* and the *Toronto Daily Star*.

He headed his own public relations firm, Norton Anderson Associates, in Ottawa and Toronto, and later founded and was president of The Peace Tower Publishing Co. Ltd., Ottawa. He worked for a time with the Dominion Forest Service.

He served overseas as an infantry officer in the last war, and was retired from the Army with the rank of a major. Married, he has two daughters.



Day by day . . .

Through 128 years of peace and war, Canadians have put their trust in the Bank of Montreal. Today, more than a million people from coast to coast choose this bank as their depository.

"MY BANK"
TO A MILLION CANADIANS
B of M

BANK OF MONTREAL

working with Canadians in every walk
of life since 1817

Branches throughout Canada and Newfoundland, and
in London, New York, Chicago and San Francisco.

HOLIDAY PROFIT

Standing on a point, alone,
he lifted up his head and
breathed the clean fresh air
which came to him across
the fresh waters of an
Ontario northland lake

It was summer again,
and here he was again,
— on holiday.
As his nostrils tested
the sweetness of the breeze,
his mind came to rest
on a single thought,
sorted out from all of
those which flitted
through his business head.

Business,
No, that was not the thought.
Escape perhaps, but not
the coward's type.
Exemption,
That was it.
Exemption from labour,
Anxiety and care.
Freedom to enjoy again
communion with nature.

A few short weeks,
He'd count the dwindling
days, — reluctantly, but
feel assured that when
he would return to
city desk, he'd have
new health, new vigour,
higher spirit for the task.

The breeze which lightly shifted
a strand of hair across
his temple, brought a whiff
of homely smoke:
His family stole away the
thought of self.
They were included in
that thought, and in his holiday.
The cottage he had built
was just around the bend.
His kiddies were joyous on
the sandy beach which
once perhaps had known
the touch of Champlain's craft,
adventure bent.

His mind's eye saw his wife
stowing resin-scented pine
in cottage stove, for lunch.
His mind wavered from his
considered chain of thought,
jumped from reflection
of the history of that pine
which might have been there
when —
to lunch.

Well, anyway, he'd come
again to this still point,
to think once more these thoughts.
This afternoon he'd be old
Walton with his rod, to-night
he'd wander to the cabin
where the Ranger stays
He'd tell him what he'd thought.
He talks that language; and
'twas he who found this spot,
Crown land for a song —
Investment with a profit,
Humph! Back again to business,
On his holiday.

"The Forest", drawn by Thoreau MacDonald, from his original painting for the pulp and paper industry.

USING THE FOREST

The great forests, and the water powers employed in their development, account for about one-quarter of all primary production in Canada. They are the country's greatest single source of export trade. The protection of our woods resources is important to every Canadian.

Of the total wood consumed in Canada each year, lumber and associated products take about one-third; wood for fuel takes almost one-quarter; *more than one-fifth (22.6 percent) is dead waste from fire, insects and other ravages.* Pulp and paper operations use only one-sixth of the total, the smallest part of all in consumption but by far the largest in terms of national gain.

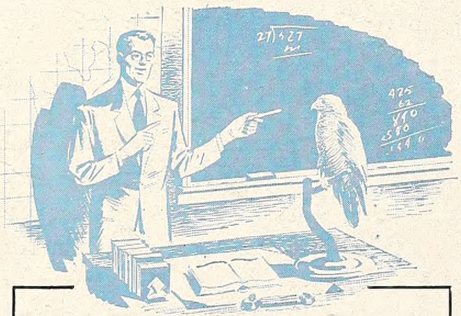
Pulp and paper companies are deeply concerned in making effective their declared forest policy of perpetual yield, not only from the areas presently connected with their mills, but from the forests of Canada as a whole. In every phase of forest management, this industry is in the forefront of the effort to maintain a sustained and continuous flow of forest wealth.

PULP & PAPER INDUSTRY OF CANADA

109 mills, small and large, from coast to coast.

†*Nature Unspoiled* — YOURS TO ENJOY
YOURS TO PROTECT

"RED-SHOULDERED HAWKS" *by F. L. Beebe.*



THE TEACHER
—a *Conservationist*

By educating today's youth in the ways of conservation, teachers can contribute greatly to the cause of conservation.

Contrary to popular opinion, the Red-shouldered Hawk is most useful to man, particularly to the farmer. The keen eyes of these hawks are ever on the look-out for field mice, grasshoppers and crickets, which they destroy in countless numbers. Anyone who is familiar with the habits and characteristics of these birds is aware of their great economic value, and encourages them to nest near fields and meadows.

* "Scientific investigations into their feeding habits and the proof obtained by stomach-analyses changed the false notion that all hawks are bad."

* An excerpt from—"Protect Those Predators" by Kerry Wood, in CARLING'S CONSERVATION DIGEST, Vol. I, No. 2, published by The Carling Conservation Club.

CARLING'S

THE CARLING BREWERIES LIMITED
WATERLOO AND WALKERVILLE, ONTARIO

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